

Cisco AP 541N Wireless Access Point Part of the Cisco Small Business Pro Series

The success of your business depends on the ability of your employees to stay connected to applications and customers, and to work productively throughout your business location. More and more small companies rely on wireless networks to give their employees greater mobility and flexibility, and to support partners and guests at the business site. But configuring, securing, and managing wireless networks can be daunting, especially for small businesses without an IT department. As your business grows and you need to expand wireless coverage or add new features, these challenges only increase. How can small companies cost-effectively address these demands and realize the full benefits of business-class wireless mobility? Cisco provides the solution with the Cisco® AP 541N Wireless Access Point.

Cisco AP 541N Wireless Access Point

The Cisco AP 541N is a 802.11n dual-band clustering access point built for small businesses. The clustering capability makes it easy to set up, configure, and manage a growing wireless network. You can deploy multiple access points and push a single configuration to all the devices within the cluster, managing your wireless network as a single system without worrying about interference between access points, and without having to configure each access point as a separate device.

The Cisco AP 541N is a versatile, high-performance wireless solution that supports virtually any wireless application your business requires, including mobile data, voice over wireless LAN, wireless video monitoring, and highly secure guest access. It can be used as a standalone access point in small wireless environments or deployed as part of a larger data and communications network, such as the Cisco Smart Business Communication System (SBCS). Designed to integrate with other solutions in the Cisco Small Business Pro Series, it makes even advanced wireless and communications applications easy to install, configure, and support.

With the Cisco AP 541N, you can:

- Easily set up, configure, and manage multiple wireless access points, without the need to invest in a wireless controller
- Support 802.11n wireless connectivity, for applications that demand high bandwidth
- Select either a 2.4-GHz or 5-GHz frequency band, for greater data transmission and coverage
- Gain peace of mind with a wireless network that provides robust security
- Invest in a scalable solution that is designed to integrate with other Cisco Small Business Pro Series products and grow with your business

Deployment Scenarios for the Cisco AP 541N Wireless Access Point

The following use cases highlight scenarios for which the Cisco AP 541N is well suited.

- **Small office data access:** In a small business location with a small staff, a single wireless access point can provide all the coverage required. By deploying the Cisco AP 541N, you gain business-class security features and support services that go far beyond what consumer-grade wireless devices can provide, to better protect your employees, your guests, and your business. With dual-band 802.11n wireless connectivity, the solution provides the performance and range to let employees access business applications and transfer large files

easily and reliably. The built-in clustering capabilities also mean that you can add more access points easily as your business grows.

- **Wireless voice communications:** As a Cisco Small Business Pro Series wireless solution, the Cisco AP 541N is designed to fully integrate with other Cisco Small Business Pro Series network and voice over IP solutions, and with the Cisco SBCS IP telephony system. Using the access point's clustering capabilities and integrated roaming features, you can quickly deploy multiple access points and help ensure reliable voice connectivity anywhere in your business, even as employees move from one access point to another. Using the dual-band option, you can also connect all employee laptops and IP phones over the 5-GHz radio band and eliminate interference from other common 2.4-GHz wireless devices.

These use cases are enabled by highly secure, powerful Cisco Small Business Pro Series wireless capabilities. The solution can be set up and configured in minutes.

Features and Benefits

The Cisco AP 541N provides:

- **Robust wireless coverage and performance:** The Cisco AP 541N is an 802.11n multiple-input, multiple-output (MIMO) dual-band wireless solution. The 802.11n wireless standard builds on previous-generation (802.11a/b/g) wireless technologies to deliver greater range and reliability, and up to nine times the performance. Where previous wireless technologies communicate over a single stream and antenna, Wireless-N MIMO solutions transmit and receive over multiple antennas to provide much greater resiliency and data throughput. With the ability to configure the access point for either the 2.4-GHz or 5-GHz frequency, you can realize greater wireless capacity and a cleaner signal, with less interference.
- **Advanced clustering intelligence:** Clustering is the ability of a wireless access point to form a dynamic, configuration-aware group (called a cluster) with other similarly designed access points in the same network and subnet. All access points in the cluster self-organize, cloning configuration settings from one access point to another and balancing wireless channels to minimize radio interference. The cluster also provides a single point of administration, allowing you to configure and manage all access points as a single wireless network, rather than as a collection of individual devices -- without the need for a wireless controller. Types of information shared within the cluster include:
 - Wireless network identifier (SSID)
 - Security features, such as encryption settings, access lists, and MAC address filters
 - User names and passwords
 - Quality of service (QoS) settings
 - Radio settings
 - Wireless interface settings
 - Guest welcome screen
- **Highly secure guest access:** In a world where technology touches virtually every aspect of business operations, vendors and customers often need to access the Internet when visiting your business location. The Cisco AP 541N includes an easy-to-follow graphical user interface (GUI) to guide you through the setup of a guest network. This highly secure guest access solution lets visitors get online without granting them any visibility into your business network and without impeding the performance of your business applications. The solution even lets you provide a welcome screen to greet visitors using your guest network (it could be a welcome screen or company policy).

- **Simple setup and configuration:** The Cisco AP 541N is designed to easily integrate with other Cisco Small Business Pro Series solutions and the Cisco SBCS, allowing you to implement even advanced voice and video applications quickly and easily. The solution includes an intuitive GUI to guide you through each step in an implementation, and lets you configure your entire wired and wireless environment from a single interface, using the Cisco Configuration Assistant.
- **Strong security:** Cisco AP 541N access points include robust security features. Features include advanced Wi-Fi Protected Access (WPA2) encryption, rogue access point detection, access control lists, and MAC address filtering.
- **Deployment flexibility:** The Cisco AP 541N can operate using either standard AC power or Power over Ethernet (PoE) to support virtually any deployment. With PoE, you can connect and power access points with a single Ethernet cable, simplifying installations in locations such as drop ceilings where power outlets may not be accessible.
- **Scalable design:** Designed to operate as either a standalone wireless access point or as part of a larger business network, the Cisco AP 541N can meet virtually any business requirement, from small basic deployments to elaborate wireless voice and video installations. This flexibility, along with the ability to easily add wireless access points, means that the Cisco AP 541N solution will grow with your business as your needs change, while minimizing operational costs.
- **Peace of mind:** As a Cisco Small Business Pro Series product, the Cisco AP 541N is backed by a Cisco standard 1-year hardware warranty, with 3-year Cisco Small Business Pro Service available to protect your investment.
- **An integrated solution:** As part of the Cisco Small Business Pro Series, the Cisco AP 541N works with other Cisco Small Business Pro Series products to deliver powerful, integrated systems that are competitively priced and easy to deploy and manage. Individually, each Cisco Small Business Pro Series product solves a small business need and delivers peace of mind. Together, they form a strong, versatile technology foundation that you can build on as your communications needs change.
- Limited lifetime warranty

Product Specifications

Table 1 lists the features and benefits of the Cisco AP 541N wireless access point. Table 2 contains the product specifications.

Table 1. Features and Benefits of the Cisco AP 541N Wireless Access Point


Feature	Benefit
802.11a/b/g/n radio	IEEE 802.11a/b/g/n Draft 2.0 compliant and 2.4-GHz/5-GHz transceiver
Industry-leading radio design	<ul style="list-style-type: none"> • Provides robust signals to long distances • Mitigates the effects of multipath signal propagation for more consistent coverage
Variable transmit power settings	<ul style="list-style-type: none"> • Allows access point coverage to be tuned for differing coverage requirements • Low output power setting supports closer spacing of access points in high-density deployments
External antennas	<ul style="list-style-type: none"> • Support 2T3R MIMO single radio module with 3 antenna ports • Provides omnidirectional coverage for offices and similar RF environments
Hardware-assisted Advanced Encryption Standard (AES) encryption	Provides high security without performance degradation
IEEE 802.11i-compliant; WPA2 and WPA-certified	Helps to ensure interoperable security with a broad range of wireless LAN client devices
Multipurpose and lockable mounting bracket	<ul style="list-style-type: none"> • Provides greater flexibility and ease of installation on walls, ceilings, and suspended ceiling railways • Accommodates a standard padlock for theft deterrence

Power over Ethernet (IEEE 802.3af)	<ul style="list-style-type: none"> • Provides an interoperable alternative to AC power • Simplifies deployment by allowing power to be supplied over an Ethernet cable • Compatible with 802.3af-compliant power sources
Includes Cisco Configuration Assistant management software	Cisco Configuration Assistant simplifies the task of configuring and managing the AP 541N as well as the entire Cisco Smart Business Communication System. Cisco Configuration Assistant supports up to 10 Access Points

Table 2. Product Specifications for the Cisco AP 541N Wireless Access Point

Item	Specification		
Part number	Regulatory domains: (x = regulatory domain) A = FCC, E = ETSI, N = non FCC		
	<ul style="list-style-type: none"> • A certified for US and Canada • E certified for Austria, Belgium, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Netherlands, Norway, Portugal, Sweden, Switzerland, Spain, and UK • N certified for Australia and New Zealand 		
Data rates supported	<ul style="list-style-type: none"> • 802.11a/b/g: <ul style="list-style-type: none"> ◦ 54, 48, 36, 24, 18, 12, 9, 6, 11, 5.5, 2, and 1 Mbps • 802.11n: <ul style="list-style-type: none"> ◦ 20-MHz bandwidth: MCS 0-15 for supported data rates ◦ 40-MHz bandwidth: MCS 0-15 for supported data rates 		
Network standard	IEEE 802.11n, IEEE 802.11b/g, IEEE 802.11a		
Uplink	Autosensing 802.3 10/100/1000BASE-T Ethernet		
Frequency band and operating channels	<p>Americas (FCC):</p> <ul style="list-style-type: none"> • 2.412 to 2.462 GHz; <ul style="list-style-type: none"> ◦ 11 channels for 802.11b/g, 802.11n (20 MHz) ◦ 7 channels for 802.11n (40 MHz) • 5.18 to 5.24 GHz; 5.745 to 5.825 GHz; <ul style="list-style-type: none"> ◦ 9 channels for 802.11a, 802.11n (20 MHz) <p>Europe (ETSI):</p> <ul style="list-style-type: none"> • 2.412 to 2.472 GHz; <ul style="list-style-type: none"> ◦ 13 channels for 802.11b/g, 802.11n (20 MHz) ◦ 9 channels for 802.11n (40 MHz) • 5 GHz: 5.18 to 5.32 GHz; 5.5 to 5.7 GHz; <ul style="list-style-type: none"> ◦ 17 channels for 802.11a, 802.11n (20 MHz) ◦ 7 channels for 802.11n (40 MHz) 		
Nonoverlapping channels	802.11b/g: 3		
Receive sensitivity (typical)	<table border="0"> <tr> <td style="vertical-align: top;"> <p>2.4 GHz</p> <ul style="list-style-type: none"> • 802.11b/g <ul style="list-style-type: none"> ◦ 1 Mbps: -91 dBm ◦ 11 Mbps: -85 dBm ◦ 6 Mbps: -86 dBm ◦ 54 Mbps: -69 dBm • 802.11n/20 MHz <ul style="list-style-type: none"> ◦ MCS0: -86 dBm ◦ MCS7: -70 dBm ◦ MCS8: -85 dBm ◦ MCS15: -68 dBm • 802.11n/40 MHz <ul style="list-style-type: none"> ◦ MCS0: -84 dBm ◦ MCS7: -66 dBm ◦ MCS8: -83 dBm ◦ MCS15: -65 dBm </td> <td style="vertical-align: top;"> <p>5 GHz</p> <ul style="list-style-type: none"> • 802.11a <ul style="list-style-type: none"> ◦ 6 Mbps: -82 dBm ◦ 54 Mbps: -67 dBm • 802.11n/20 MHz <ul style="list-style-type: none"> ◦ MCS0: -83 dBm ◦ MCS7: -68 dBm ◦ MCS8: -82 dBm ◦ MCS15: -66 dBm • 802.11n/40 MHz <ul style="list-style-type: none"> ◦ •MCS0: -82 dBm ◦ •MCS7: -64 dBm ◦ •MCS8: -81 dBm ◦ •MCS15: -62 dBm </td> </tr> </table>	<p>2.4 GHz</p> <ul style="list-style-type: none"> • 802.11b/g <ul style="list-style-type: none"> ◦ 1 Mbps: -91 dBm ◦ 11 Mbps: -85 dBm ◦ 6 Mbps: -86 dBm ◦ 54 Mbps: -69 dBm • 802.11n/20 MHz <ul style="list-style-type: none"> ◦ MCS0: -86 dBm ◦ MCS7: -70 dBm ◦ MCS8: -85 dBm ◦ MCS15: -68 dBm • 802.11n/40 MHz <ul style="list-style-type: none"> ◦ MCS0: -84 dBm ◦ MCS7: -66 dBm ◦ MCS8: -83 dBm ◦ MCS15: -65 dBm 	<p>5 GHz</p> <ul style="list-style-type: none"> • 802.11a <ul style="list-style-type: none"> ◦ 6 Mbps: -82 dBm ◦ 54 Mbps: -67 dBm • 802.11n/20 MHz <ul style="list-style-type: none"> ◦ MCS0: -83 dBm ◦ MCS7: -68 dBm ◦ MCS8: -82 dBm ◦ MCS15: -66 dBm • 802.11n/40 MHz <ul style="list-style-type: none"> ◦ •MCS0: -82 dBm ◦ •MCS7: -64 dBm ◦ •MCS8: -81 dBm ◦ •MCS15: -62 dBm
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<p>Available transmit power settings (maximum power setting will vary by channel and according to individual country regulations)</p>	<p>2.4 GHz</p> <ul style="list-style-type: none"> • 802.11b: 15 dBm • 802.11g: 15 dBm • 802.11n/20MHz: 12 dBm • 802.11n/40 MHz: 11 dBm 	<p>5 GHz</p> <ul style="list-style-type: none"> • 802.11a: 15 dBm • 802.11n/20 MHz: <ul style="list-style-type: none"> ◦ 13 dBm (ch 36 to 64) ◦ 12 dBm (ch 100 to 165) • 802.11n/40 MHz: <ul style="list-style-type: none"> ◦ 13 dBm (ch 36 to 64) ◦ 12 dBm (ch 100 to 165)
<p>Range (Outdoor throughput)</p>	<p>2.4 GHz</p> <ul style="list-style-type: none"> • 802.11g: <ul style="list-style-type: none"> ◦ 440m at 1 Mbps ◦ 300m at 11 Mbps ◦ 325m at 6 Mbps ◦ 120m at 54 Mbps • 802.11n/20 MHz <ul style="list-style-type: none"> ◦ 310m at MCS0 ◦ 100m at MCS15 • 802.11n/40 MHz <ul style="list-style-type: none"> ◦ 240m at MCS0 ◦ 18m at MCS15 	<p>5 GHz</p> <ul style="list-style-type: none"> • 802.11a <ul style="list-style-type: none"> ◦ 250m at 6 Mbps ◦ 100m at 54 Mbps • 802.11n/20 MHz <ul style="list-style-type: none"> ◦ 255m at MCS0 ◦ 40m at MCS15 • 802.11n/40MHz <ul style="list-style-type: none"> ◦ 230m at MCS0 ◦ 15m at MCS15
<p>Ranges and actual throughput vary based upon numerous environmental factors, so individual performance may differ.</p>		
<p>Compliance</p>	<p>Safety:</p> <ul style="list-style-type: none"> • UL 60950-1 • CAN/CSA-C22.2 No. 60950-1 • IEC 60950-1 • EN 60950-1 <p>Radio approvals:</p> <ul style="list-style-type: none"> • FCC Part 15.247, 15.407 • RSS-210 (Canada) • EN 300.328, EN 301.893 (Europe) • AS/NZS 4268.2003 (Australia and New Zealand) <p>EMI and susceptibility (Class B):</p> <ul style="list-style-type: none"> • FCC Part 15.107 and 15.109 • ICES-003 (Canada) • EN 301.489-1 and -17 (Europe) 	
<p>Antennas</p>	<ul style="list-style-type: none"> • 2.4 GHz/5 GHz • Gain: 2.0 dBi • Horizontal beam width: 360° 	
<p>Status LEDs</p>	<p>External LEDs indicate Power, PoE, Diag, Speed, LAN, and WLAN 2.4G or WLAN 5G</p>	
<p>Security</p>	<ul style="list-style-type: none"> • Wireless Security: Wired Equivalent Privacy (WEP) 64-bit/128-bit, WPA-Pre-Shared Key (WPA-PSK), WPA2-PSK, WPA-ENT, WPA2-ENT • Access Control: Wireless connection control, MAC-based • SSID Broadcast: SSID broadcast enable/disable • Client Isolation: Supports wireless client isolation between and within SSIDs • 802.1X: Wireless clients can be authenticated through IEEE 802.1X 	
<p>Dimensions</p>	<ul style="list-style-type: none"> • Metric: 308 x 44 x 180 mm • English: 12.13 x 1.73 x 7.09" • Weight: 2.9487 lbs." 	
<p>Environmental</p>	<ul style="list-style-type: none"> • Operating temperature: 32° to 104°F (0° to 40°C) • Storage temperature: -20° to 70°C • Operating humidity: 10% to 85% noncondensing • Storage humidity: 5% to 90% noncondensing 	
<p>System Memory</p>	<ul style="list-style-type: none"> • 64 MB RAM • 32 MB flash 	
<p>Input Power Requirements</p>	<ul style="list-style-type: none"> • 100 to 240 VAC; 50 to 60 Hz (power supply) • 12VDC, 1.25A 	

Power Draw	9.9W maximum
HW Warranty	Limited lifetime hardware warranty with return to factory replacement
Wi-Fi Certification	

System Requirements

Table 3 gives the system requirements for the Cisco AP 541N.

Table 3. System Requirements for the Cisco AP 541N Wireless Access Point

Access Utilizing	Description
Browser	Using the Web browser management GUI requires a computer running Internet Explorer 6.0 and later or Firefox 3.0 or later.
Power over Ethernet (PoE)	Power-sourcing equipment (PSE) compliant with IEEE 802.3af, and providing at least 10W at 48 VDC.

Ordering Information

Table 4. Ordering Information

Part Number	Product Name
AP541N-A-K9	Cisco AP 541N Wireless Access Point (USA / Canada)
AP541N-E-K9	Cisco AP 541N Wireless Access Point (European Union)
AP541N-N-K9	Cisco AP 541N Wireless Access Point (Australia / New Zealand)
AP540N-CMK	Ceiling Mount Kit for Wall / Ceiling Mounting

Cisco Limited Lifetime Warranty for Cisco Small Business Products

This Cisco Small Business product comes with a limited lifetime hardware warranty with return to factory replacement and a 1-year limited warranty for fans and/or power supplies. In addition, Cisco offers telephone technical support at no charge for the first 12 months following the date of purchase and software bug fixes, as available, for the warranty term. To download software updates, go to:

www.cisco.com/cisco/web/download/index.html.

Product warranty terms and other information applicable to Cisco products are available at

www.cisco.com/go/warranty.

Cisco Small Business Support Service

Cisco Small Business Pro Service provides “peace of mind” support coverage to help you get the most value from your Cisco Small Business Pro Series solution. The Cisco AP 541N solution comes with three years of device-level service as an option. This service includes telephone and online chat support through the Cisco Small Business Support Center, software updates and bug fixes, and access to the Cisco Small Business Support Community. If a wireless access point needs to be replaced, the service also includes next-business-day advance hardware replacement where available (same day shipping in other areas).

A Strong, Highly Secure Wireless Foundation for Your Business

To stay on top in a competitive marketplace, you need to empower your employees to work as productively and efficiently as possible. The Cisco AP 541N provides the robust performance and security that your business demands, in an affordable solution that is easy to deploy and use. Delivered by a worldwide network of local Cisco partners and backed by Cisco service and support, Cisco Small Business Pro Series solutions provide a versatile technology foundation to help you solve the business problems of today and meet the challenges of tomorrow.

For More Information

To find out more about the Cisco AP 541N and other Cisco Small Business Pro solutions, visit:

<http://www.cisco.com/go/ap500>.



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